

Appl. No. 10/600,120
Amdt. dated November 17, 2004
Reply to Office Action of August 25, 2004

PATENT

REMARKS/ARGUMENTS

Claims 1-33 are pending in the present patent application. Claims 1-3, 7, 9, 12, 16-19, 28-29, and 32-33 have been amended. No new matter has been added to the new or amended claims. Support for the amendments can be found in the specification. Reconsideration of the claims is respectfully requested.

Summary of the Interview with the Examiner

Applicant would like to thank the examiner for the interview conducted on November 17, 2004. During the interview, applicant discussed one the problems solved by the present invention. Specifically, the present invention solves the problem of glitches that occur when the phase of a clock signal is shifted (see e.g., glitch 301 in Figure 3 of the application).

According to an embodiment of the present invention, a phase increase is synchronized with the VP1 signal to eliminate the effects of glitches on the output clock signal VOUT. Because a phase increase is synchronized with a falling edge of VP1, the phase increase is not synchronized with an edge of VP0. Thus, the phase increase does not coincide with an edge of VP0. Therefore, VP0 and VOUT do not develop an unwanted glitch.

Rejections of Claims 1-4, 6-8, 12-15, 20-22, 24, 28, 29, and 32

Claims 1-4, 6-8, 12-15, 20-22, 24, 28, 29, and 32 were rejected as being anticipated by or obvious in light of U.S. Patent 6, 600,355 to Nguyen.

A. Claims 1 and 29

Claim 1 has been amended to recite "wherein the phases of the selected and phase forward clock signals remain constant until another edge of the phase change signal." Support for this amendment can be found in the specification at, for example, page 5, paragraph 33 and in Figure 3.

This feature is neither shown in or suggested by the Nguyen patent. Specifically, Nguyen discloses that the phases of the S and R signals continue to change while the RESET signal is low, as shown in Figure 5B.

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For this reason, it is respectfully submitted that amended claim 1 and its dependent claims are novel and nonobvious over Nguyen. Claim 29 and its dependent claims are novel and nonobvious over Nguyen for similar reasons.

B. Claims 7, 12, 20, 28, and 32

Claim 28 has been amended to recite "wherein each increase in the phase of the selected clock signal coincides with an edge of the phase forward clock signal." Support for this amendment can be found in the specification at, for example, page 6, paragraphs 38-39.

This feature is desirable because it prevents glitches from developing in the selected clock signal. Glitches can occur in the phase forward clock signal as shown by reference numeral 301 in Figure 3 of the present application.

However, glitches in the phase forward clock signal are not a problem, because the selected clock signal is used as the output signal, not the phase forward clock signal. See the specification at page 6, paragraph 38-39 and Figure 3.

This feature is neither shown in or suggested by the Nguyen patent. In Nguyen, signals S0, S90, S180, S270, R0, R90, R180, and R270 control multiplexers 503 and 504 and cause the phases of signals S and R to shift. See Nguyen at col. 5, lines 4-9 and 26-35. Referring to Figure 5B, rising edges of signals S0 and S180 are not shown as coinciding with pulses of signal R. Also, rising edges of signal R90 are not shown as coinciding with edges of signal S.

Therefore, Nguyen does not disclose or suggest that each phase increase of signal S is synchronized with an edge of signal R, or that each phase increase of signal R is synchronized with an edge of signal S.

For at least these reasons, it is respectfully submitted that amended claim 28 and its dependent claims are novel and nonobvious over Nguyen. Claims 7, 12, 20, and 32 and their dependent claims are also novel and nonobvious over Nguyen for similar reasons.

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Allowable Subject Matter

The office action indicated that claims 5, 9-11, 16-19, 23, 25-27, 30, 31, and 33 contain allowable subject matter. Claim 9 has been amended in to an independent claim to include all of the elements of claim 7.

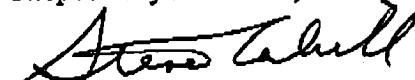
Claims 16-19 have been amended into independent claims to include elements from the base claim 12. The limitation of shifting the phases of the output clock signal and the phase forward signal "by 360°/N" has been removed from claims 16, 18 and 19. Applicants believe amended claims 16-19 are still allowable.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



Steven Cahill
Reg. No. 44,578

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, Eighth Floor
San Francisco, California 94111-3834
Tel: 650-326-2400 Fax: 415-576-0300
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